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EXAMINER	
SHAH, PARAS D	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/722,038	PECK, JEFF	
	Examiner	Art Unit	
	Paras Shah	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,7-16,19 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,7-16,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Arguments filed on 12/21/2007. Claims 1-15, and 20 remain pending and have been examined. The Applicants' remarks have been carefully considered, but they are not persuasive and do not place the claims in condition for allowance. Accordingly, this action has been made FINAL.

2. All previous objections and rejections directed to the Applicant's disclosure and claims not discussed in this Office Action have been withdrawn by the Examiner.

Response to Arguments

1. Applicant's arguments, see page 6, filed on 12/21/2007 with respect to the rejection(s) of claim(s) 1, 9, and 14 under Tackin (US 7,180,892) in view of Smith *et al.* (US 6,862,298) have been fully considered and are not persuasive. The Applicant argues that the limitations of "determining an end to said voice information based on said measurement and a delay interval; and adjusting said delay interval to correspond to an average packet delay time" is not taught in the latter cited reference. The Examiner traverses this argument. In the former part of the limitation, the determination of an end to voice information based on said measurements and a delay interval is taught by the primary reference by Tackin. Specifically, in col. 25, lines 39-44. It is obvious that a voice activity detector will detect the start and end of speech as it detects periods of speech and non-speech. The use of a delay interval is taught in col. 13, lines 19-21 and col. 14, lines 1-6. The jitter buffer adds a delay for packets that are not arriving on time and adjust the time (see col. 35, lines 22-25, lines 26-44, and lines 23-

31). Since the jitter buffer compensates for delayed packets. Based on this delay the end of voice is affected as additional packets are repeated or due to misconception of a silence period. Hence, the compensation by the jitter buffer affects the actual determination of the ending of voice for preventing delay on the onset of next packet. The latter limitation of adjusting said delay interval to correspond to an average packet delay time is taught by Smith *et al.* In the Abstract, col. 2, lines 44-50 an average packet delay time is used to adjust delay interval. It is noted by the Applicant that the Jitter Manager uses the packet delay to manage the size of the jitter buffer. Although this is true, the jitter buffer manager also controls the speed through which each packet arrives (see Smith *et al.*, col. 5, lines 25-27). The utilization or altering of the speed as depicted depends on the buffer size (see Smith, col. 6, lines 32-47). The average packed delay is used to measure the variation in packet arrival. Hence, the next packet arriving depends on the jitter size as well as the speed. Thus, the end of voice as claimed in the limitation would be obvious since each packet is arriving at a specific speed, which influences the ending time of speech by filling in or augmenting the speech information (see Smith, col. 4, lines 9-13). The Smith *et al.* reference presents a method for estimating the average packet delay. Therefore, as denoted above, all of the limitations have been taught by the combination of Tackin in view of Smith *et al.*

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 1, 5, 8, 9, 13, 14, 19, and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Tackin (US 7,180,892) in view of Smith *et al.* (US 6,862,298).

As to claims 1 and 14, Tackin teaches a method, comprising:

receiving a plurality of packets (see col. 13, lines 1-3) with audio information (see Abstract) (e.g. Applicant defines audio information to include voice and silence (see page 4, [0006], lines 3-5). Audio packets are retrieved.);

determining whether said audio information represents voice information (see col. 12 lines 4-9) (e.g. The determination of the audio information is found by the voice activity detector); and

buffering said audio information in a jitter buffer (see Figure 6, elements 86 and 90 and col. 13, lines 66-67-col. 14. lines 1-3 and figure 25, element 510) after said determination (see col. 13, lines 18-27). The reference also teaches a computer readable storage medium for the above limitations (see col. 2, lines 45-51) (e.g. Audio information is buffered.).

wherein said determining comprises:

receiving frames of audio information at a voice activity detector (see col. 12, lines 4-5) (e.g. It is shown by the reference that audio information (voice) is received by the voice activity detector);

measuring at least one characteristic (see col. 25, lines 39-44) of said frames (see col. 2, line 10)(e.g. It is shown that frames are used as the timing input of the signal containing information);

determining a start of voice information based on said measurements (see col. 25, lines 39-44) (e.g. VAD is used to speech. It is obvious that the start and end of speech is found through a VAS as is known in the art.); and

determining an end to said voice information based on said measurements (see col. 25, lines 39-44) (e.g. It is obvious that a voice activity detector will detect the start and end of speech as it detects periods of speech and non-speech) and a delay interval (see col. 13, lines 19-21 and col. 14, lines 1-6) (e.g. The jitter buffer adds a delay for packets that are not arriving on time and adjust the time (see col. 35, lines 22-25, lines 26-44, and lines 23-31)The applicant regards the delay time being calculated from the jitter buffer (see Applicant's Specification, page 17, [0038], lines 1-6.)

However, Tackin does not specifically teach the adjusting of the delay interval based on an average packet delay time.

Smith *et al.* teaches the adjusting said delay interval to correspond to an average packet delay time (see Abstract and col. 2, lines 44-50) (e.g. An average packet delay time is used to adjust delay interval).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the voice based packet network as taught by Tackin with the use of a delay based on the average packet delay time

as taught by Smith *et al.*. The motivation to have combined the two references involves the improvement in audio quality by having smaller delays during high network quality and increasing delay during poor network conditions. (see Smith *et al.* col. 2, lines 17-23).

As to claim 5, Tackin in view of Smith *et al.* teaches all of the limitations as in claim 1, above.

Furthermore, Tackin teaches said characteristic comprises an estimate of an energy level for said frame (see col. 25, lines 29-38) (e.g. An energy level is used to determine if speech is present.).

As to claims 7 and 19, Tackin in view of Smith *et al.* teaches all of the limitations as in claim 1, above.

measuring an average packet delay time by said jitter buffer (see Smith *et al,* Abstract and col. 2, lines 44-50 and lines 30-33) (An average packet delay time is calculated and compares to a reference delay. A variation parameter is measure and then the delay is adjusted.)

sending said average packet delay time (see Smith *et al,* Abstract and col. 2, lines 44-50) to said voice activity detector (see Tackin, Figure 6, elements 90 and 98) (e.g. It is evident from the diagram that from the voice synchronizer it proceeds down to the voice decoder and lost frame recovery

engine, which then proceeds to the voice activity detector (see col. 13,lines 66-col. 14, line 4). The voice synchronizer is used to adjust based on the delay.)

As to claims 8 and 20, Tackin in view of Smith *et al.* teaches all of the limitations as in claim 1, above.

Furthermore, Tackin teaches retrieving a frame(see col. 12, lines 60-63) (e.g. It is implied by the reference that frames of audio is used.) of audio information from said packets (see Figure, 6, element 60a) (e.g. Audio information in the form of voice is received, which has undergone pulse code modulation);

receiving an echo cancellation reference signal (see Figure 6, output of element 108 to input if element 70 and col. 10 lines 66-67-col. 11, lines 2-4) (e.g. It is evident for the echo canceller a reference signal is needed that is free from echo to compare with the incoming signal);

canceling echo from said frame of audio information (see col. 10, lines 66-67,col. 11, lines 1-5) (e.g. The input signal contains voice and noise information); and

sending said frame of audio information to a voice activity detector (see Figure 6, output of element 70 to input to element 72 to input of element 80) (e.g. A VAD is used and the audio information is sent to determine speech.).

As to claim 9, Tackin teaches a system comprising:

an antenna (e.g. It is inherent that digital phones consist of built-in antenna as well as a receiver for hearing audio information and transmitter for transmitting information.);

a receiver connected to said antenna to receive a frame of information (e.g. It is inherent that digital phones consist of built-in antenna as well as a receiver for hearing audio information and transmitter for transmitting information.)

a voice activity detector to detect voice information in said frame (see col. 12, lines 4-5); and

a jitter buffer to buffer said information after said detection by said voice activity detector buffer (see Figure 6, elements 80, 86 and 90 and col. 13, lines 66-67-col. 14, lines 1-3 and figure 25, element 510). Further, Tackin teaches the use of digital phones (see col. 6, lines 13-14. It is seen that once the data has been encoded and VAD has been performed (see col. 11, lines 40-49) the decoding process utilizes the jitter buffer).

However, Tackin does not specifically teach the adjusting of the delay interval based on an average packet delay time.

Smith *et al.* teaches the adjusting said delay interval to correspond to an average packet delay time (see Abstract and col. 2, lines 44-50) (e.g. The delay is adjusted based on the average packet delay time).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the voice based packet network as

taught by Tackin with the use of a delay based on the average packet delay time as taught by Smith *et al.*. The motivation to have combined the two references involves the improvement in audio quality by having smaller delays during high network quality and increasing delay during poor network conditions. (see Smith *et al.* col. 2, lines 17-23).

As to claim 13, Tackin in view of Smith teaches all of the limitations as in claim 9, above.

Furthermore, Tackin teaches said voice activity detector further comprises

an estimator to estimate energy level values (see col. 25, lines 29-36) (e.g. Energy levels are estimated.);

a voice classification module connected to said estimator to classify information for said frame (see col. 25, lines 29-36) (e.g. It is evident by the reference that once the energy level is found classification occurs.)

6. Claims 2, 3, 12, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tackin in view of Smith *et al.* as applied to claims 1, 9, and 14 above, in view of Clemm (US 6,865,162).

As to claims 2 and 15, Tackin in view of Smith *et al.* teach a voice based packet network.

However, Tackin in view of Smith *et al. et al.* does not specifically teach the buffering of a portion of said audio information in a pre-buffer for a predetermined time interval.

Clemm does teach the use of a buffer (see col. 2, line 31) for a predetermined time (see col. 2, lines 31-33) prior to said determining (see Figure 1, elements 110 and 120 and col. 2, lines 30-37) (e.g. A pre-buffer is used.).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the voice based packet network as taught by Tackin and Smith *et al.* with the buffer before the voice activity detector as taught by Clemm. The motivation to have combined the two references involve the elimination of clipping associated with voice activity detector directed during silence suppression (see Clemm col. 2, lines 47-48) as would have been seen in the teachings of Tackin.

As to claims 3 and 16, Tackin in view of Smith teaches all of the limitations as in claims 1 and 13, above.

Furthermore, Tackin teaches sending said information from the jitter buffer to an end user (see Figure 6, output of element 60b) (e.g. The applicant denotes the endpoint to be defined as the human user (see Applicant's Specification, page 8, [0018], lines 5-6 Hence, it is obvious that the output of the decode signal will be sent since the reference deals with data exchange (see abstract) . Further, it is implied that the output of the system will be transmitted to the user

since the reference deals with voice exchange). (Further, the sending of audio information to the user from the pre-buffer would have been apparent with the teaching presented by Clemm to avoid clipping).

As to claim 12, Tackin in view of Smith *et al.* teach all of the limitations as in claim 9.

Furthermore, Tackin in view of Smith *et al.* teach a voice packet based network.

However, Tackin in view of Smith *et al.* do not specifically teach the buffering of a portion of said audio information in a pre-buffer for a predetermined time interval.

Clemm teaches further comprising a buffer to store pre-threshold speech during detection by voice activity detector (see Figure 1, elements 110 and 120 and col. 2, lines 30-37) (The reference buffers a pre-threshold speech based upon two values, from a delay.)

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the voice based packet network as taught by Tackin and Smith *et al.* with the buffer before the voice activity detector as taught by Clemm. The motivation to have combined the two references involve the elimination of clipping associated with voice activity detector directed

during silence suppression (see Clemm ,col. 2, lines 47-48) as would have been seen in the teachings of Tackin.

7. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tackin in view of Smith *et al.* as applied to claim 9 above, and further in view of Sih *et al.* (US 5,920,834).

As to claim 10, Tackin in view of Smith *et al.* teach all of the limitations as in claim 9.

Furthermore, Tackin in view of Smith *et al.* teach a voice packet based network.

However, Tackin in view of Smith *et al.* do not specifically teach the echo canceller connected to a receiver to cancel the echo.

However, Sih *et al.* does teach the echo canceller being connected to a receiver (see Figure 1, elements 14 and 10) (e.g. It is evident that a transceiver consists of a receiver and a transmitter).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have the echo canceller connected to a receiver. The motivation to have combined the two references involves cancellation of echo for mobile phones that may occur in speech signals (e.g. see Sih *et al.*, col. 23-25) as would have been apparent in the teachings of Tackin, which describes communication between telephony devices.

As to claim 11, Tackin, Smith *et al.*, and Sih *et al.* teaches all of the limitations as in claim 9.

Furthermore, Sih *et al.* teaches a transmitter (see Figure 1, element 14) (e.g. Transceiver consists of a transmitter) to provide an echo cancellation signal to said echo canceller (see Figure 1, element 10 and col. 6, lines 14-18).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paras Shah whose telephone number is (571)270-1650. The examiner can normally be reached on MON.-THURS. 7:00a.m.-4:00p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571)272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

P.S.

02/07/2008